Contribution ID: **264** Type: **not specified**

Charm physics at BESIII

Tuesday, April 4, 2017 4:00 PM (20 minutes)

BESIII collected the world largest data samples of 2.93, 0.482 and 0.567 fb-1 data at 3.773, 4.009 and 4.6 GeV, respectively. Based on these data samples, BESIII perform some analyses of $D^{0(+)}$, D_s^+ and Λ_c^+, which are important to understand the weak decay machanisms of charmed mesons and baryons. The leptonic decays of $D^+ \to \tau^+\nu_\tau$ and $D_s^+ \to \ell^+\nu_\ell$ are measured. The dynamics of $D^+ \to \bar{K}^0 e^+\nu_e$, $\pi^0 e^+\nu_e$ and $K^-\pi^+ e^+\nu_e$ are studied, and the parameters of the form factors and CKM matrix elements $|V_{cs(d)}|$ are extracted. In addition, the branching fractions for $D^+ \to \bar{K}^0\mu^+\nu_\mu$, $\bar{K}^0 e^+\nu_e$, $D_s^+ \to \eta(')e^+\nu_e$ are also provided. The amplitude analysis of $D^0 \to K^-\pi^+\pi^+\pi^-$ is performed. The asymetries of $D^+ \to K_{\rm S/L}K^+(\pi^0)$ and $D^0 \to K_{\rm S/L}\pi^0(\pi^0)$ decays are measured. The branching fractions for $D^+ \to 2K_{\rm S}K^+$, $2K_{\rm S}\pi^+$, $D^0 \to 2K_{\rm S}$, $3K_{\rm S}$ as well as $D^{0(+)} \to$ other 14 channels of PP final states are determined. And, the measurement results of the Singly-Cabibbo-suppressed decays $\Lambda_c^+ \to p\pi^+\pi^-$, pK^+K^-, $p\eta$ and $p\pi^0$, the Cabibbo-favored decays of $\Lambda_c^+ \to nK_{\rm S}\pi^+$ and $\Sigma^-\pi^+\pi^+(\pi^0)$ as well as the inclusive decay of $\Lambda +$ anything have been obtained.

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Session Classification: WG5 Physics with Heavy Flavours

Track Classification: WG5) Physics with Heavy Flavours